October 14, 2014

Mr. Tom Gainer
Oregon Department of Environmental Quality
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987

Subject: **Terminal 4 Slip 3 Upland Facility**
Groundwater Monitoring and LNAPL Removal Update
ECSI No. 272
1007-10

Dear Tom:

The purpose of this letter is to provide the Oregon Department of Environmental Quality (DEQ) with an update on the groundwater monitoring and light non-aqueous phase liquid (LNAPL) removal program for the Terminal 4 Slip 3 Upland Facility (Facility).

The Port of Portland (Port) submitted the *Terminal 4 Slip 3 Annual 2013 Groundwater Monitoring and LNAPL Removal Report* (Apex, 2014) that presented the lines of evidence and recommendation for no further LNAPL removal or groundwater sampling. The Port responded to comments received from the DEQ (DEQ, 2014) in a letter dated April 17, 2014 (Port, 2014). A follow-up conference call was conducted with the DEQ on May 6, 2014. In the conference call, the Port agreed to complete the following activities:

- Continue the LNAPL removal program in accordance with the *LNAPL Removal, Groundwater Monitoring, and Contingency Plan* (*Contingency Plan*, BBL/Ash Creek/Newfields, 2005).
- Complete a 2014 annual groundwater monitoring event in accordance with the *Contingency Plan* (BBL, Ash Creek/Newfields, 2005).
- Respond to General Comments #2 and #3 received from the United States Environmental Protection Agency (EPA; EPA, 2014). The response to these comments is presented in Attachment A.
- Continue to communicate with the DEQ regarding the request to terminate the LNAPL removal and groundwater sampling program. The Port will communicate with the DEQ following the submittal of the annual 2014 results (submittal in February 2015).

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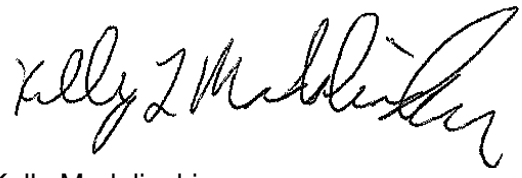
Please call me at (503) 415-6676 if you have any questions.

Sincerely,



Kelly Madalinski
Environmental Program Manager

Attachment
A - Response to EPA General Comments 2 and 3

References

Apex Companies, LLC (Apex), 2014. Annual 2013 Groundwater Monitoring and LNAPL Removal Report, Terminal 4 Slip 3 Upland Facility. January 31, 2014.

BBL/Ash Creek/Newfields, 2005. LNAPL Removal, Groundwater Monitoring, and Contingency Plan, Terminal 4 Slip 3 Upland Facility. June 16, 2005.

DEQ, 2014. Annual 2013 Groundwater Monitoring and LNAPL Removal Report, Port of Portland Terminal 4, Slip 3, ECSI #272. April 18, 2014.

EPA, 2014. Comments on Annual 2013 Groundwater Monitoring and LNAPL Removal Report Terminal 4 Slip 3 Upland Facility, Portland, Oregon. January 28, 2014.

Port, 2014. Response to DEQ Comments, Annual 2013 Groundwater Monitoring and LNAPL Removal Report, Port of Portland Terminal 4 Slip 3. April 17, 2014.

c: Kristine Koch, EPA
Rich Muza, EPA
Sean Sheldrake, EPA (w/o enclosure)
Lance Peterson, CDM (w/o enclosure)
Suzanne Barthelmess, Port (w/o enclosure)
David Breen, Port (w/o enclosure)
Ian Whitlock, Port (w/o enclosure)
Michael Pickering, Apex Companies, LLC (w/o enclosure)
Mark Lewis, Formation Environmental (w/o enclosure)
LWP File

Attachment A
Response to EPA General Comments 2 and 3
Annual 2013 Groundwater Monitoring and LNAPL Removal Report
Port of Portland Terminal 4 Slip 3

General Comment #2

The report describes that older monitoring wells (designated by "MW") are screened across the sandy fill and alluvial units. The top of the alluvial unit (underlying the fill) consists of silt 2 to 5 or more feet in thickness. Any monitoring wells which penetrate the silt could serve as a conduit for contamination from the diesel release to migrate from the "perched" groundwater in the sandy fill to the underlying alluvial water bearing zone. This is of concern since contamination in the alluvium would bypass the amended backfill in the Bank Excavation and Backfill Replacement Area (BEBRA) and potentially migrate to the Willamette River. All wells that are screened across the sandy fill and the lower alluvial units should be abandoned in accordance with State of Oregon regulations.

Response. Monitoring wells that could serve as a conduit is a valid concern. Deeper groundwater was evaluated in the Remedial Investigation in 2000. Three wells were installed with screens only within the alluvial unit (HC-4D, HC-6D, and HC-12D). These wells were sampled four times in 1998 and 1999, up to six years after installation of the "MW" wells. HC-4D and HC-6D were installed outside the area of the "MW" wells, and HC-12D was installed in the vicinity of the liquid phase hydrocarbon plume, downgradient of multiple "MW" wells. The table below summarizes the results of the PAH sampling from these alluvial wells together with results from nearby fill wells. These results suggest that the "MW" wells did not have an impact on the deeper groundwater. Additionally, throughout the monitoring period, liquid phase hydrocarbons have been removed from the wells, preventing potential for migration of liquid phase hydrocarbons.

Alluvial Well	PAH Detection Frequency	Maximum Total PAHs in Alluvial Well (µg/L)	Representative Nearby Fill Wells	Maximum Total PAHs in Fill Wells (µg/L)	Concentration Ratio, Fill:Alluvium
HC-4D	2/4	0.147	HC-1, HC-2 HC-3, HC-4S, HC-5	11.1	76
HC-6D	0/4	<0.1	HC-6S	0.27	>2.7
HC-12D	3/4	13.4	MW-8 through MW-20, HC-15 through HC-24	2,240	167

Fourteen of the 20 "MW" wells have been abandoned. The Port proposes to abandon wells MW-8, MW-14, and MW-15, pending Oregon Department of Environmental Quality (DEQ) concurrence. The 2013 annual report indicated that well MW-17 met the annual recovery rate (i.e, at the criterion of 5 gallons per year) and has shown a downward trend for three consecutive years. The Port recommended that this well be removed from the LNAPL monitoring/removal program and subsequently recommends that MW-17 be abandoned. Abandonment of these four wells would be completed in accordance with the DEQ Guidance Document *Groundwater Monitoring Well Drilling,*

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Construction, and Decommissioning (dated August 24, 1992). The abandonment activities would be presented in a letter report.

Following termination of the LNAPL removal program, the remaining two "MW" wells (MW-19 and MW-20) will be abandoned.

General Comment #3

The report does not include monitoring at the groundwater/surface water interface between the alluvial water bearing zone and the Willamette River. A point of compliance (POC) at this location should be considered due to the concern raised in General Comment 2 regarding the potential for the older monitoring wells to allow contaminant migration into the alluvial water bearing zone.

Response. A POC in the alluvium was considered, but was determined to not be necessary based on the groundwater monitoring results and analysis summarized in response to comment #2.